

Title (en)
ZERO EMISSION RECIPROCATING DRIVE PUMP

Title (de)
EMISSIONSFREIE KOLBENPUMPE

Title (fr)
POMPE D'ENTRAÎNEMENT ALTERNATIVE À ÉMISSION ZÉRO

Publication
EP 3350450 A4 20190327 (EN)

Application
EP 16847088 A 20160908

Priority
• US 201514856977 A 20150917
• US 201514945787 A 20151119
• US 2016050818 W 20160908

Abstract (en)
[origin: US2017082100A1] A reciprocating drive mechanism. The reciprocating drive mechanism may comprise: a spool assembly and a spool housing. The spool assembly may be reciprocally movable within a spool chamber of the spool housing. The spool housing may comprise a first seal, a second seal, and a third seal. When the spool assembly is within the spool chamber, the first seal, the second seal, and the third seal may divide the spool chamber into a distal chamber, an intermediate chamber, a supply chamber, and a proximal chamber, respectively. The spool assembly may comprise a first spool vent that is in fluid communication with the distal chamber. The spool housing may comprise a first housing vent that is in fluid communication with the intermediate chamber. The first spool vent may be in fluid communication with the first housing vent when an outlet of the first spool vent is aligned within the intermediate chamber.

IPC 8 full level
F04D 13/02 (2006.01); **F04B 9/12** (2006.01); **F04B 53/02** (2006.01); **F04D 29/08** (2006.01); **F16K 11/07** (2006.01)

CPC (source: EP US)
F04B 9/12 (2013.01 - EP US); **F04B 19/22** (2013.01 - US); **F04B 49/22** (2013.01 - EP US); **F04B 53/02** (2013.01 - EP US); **F04B 53/10** (2013.01 - EP US); **F16K 11/065** (2013.01 - US); **F16K 11/0704** (2013.01 - EP US); **F16K 27/04** (2013.01 - US); **F16K 27/041** (2013.01 - EP US); **F16K 31/122** (2013.01 - EP US)

Citation (search report)
• [X1] US 4703623 A 19871103 - DALIBOUT GEORGES [FR], et al
• [X1] DE 29818762 U1 19981224 - FESTO AG & CO [DE]
• [XA] US 2005036896 A1 20050217 - NAVARRO RAMON M [US]
• See references of WO 2017048582A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
US 2017082100 A1 20170323; **US 9670921 B2 20170606**; CA 2997807 A1 20170323; CA 2997807 C 20210601; DK 3350450 T3 20220704; EP 3350450 A1 20180725; EP 3350450 A4 20190327; EP 3350450 B1 20220504; ES 2914622 T3 20220614; WO 2017048582 A1 20170323

DOCDB simple family (application)
US 201514945787 A 20151119; CA 2997807 A 20160908; DK 16847088 T 20160908; EP 16847088 A 20160908; ES 16847088 T 20160908; US 2016050818 W 20160908